

IN THE CLAIMS:

1-21. Cancelled.

22. (New) A polythioether comprising:



wherein R^1 is a C_{1-10} alkyl, $-(R^3Q)_pR^3-$ or C_6-C_{20} aryl where Q is O or S, each R^3 is independently C_{1-6} alkyl, and p is an integer between 0 and 6; R^2 is C_{1-6} alkyloxy or C_{5-12} cycloalkyloxy, R^4 is H, C_{1-6} alkyl alcohol and C_{0-6} alkyl substituted with $—[CH_2CH_2(R^2)_m]—X$, where X is a halogen, m is an integer between 1 and 4, and n is an integer selected to yield a molecular weight for said polythioether of between 1000 and 10,000 Daltons.

23. (New) The polythioether of claim 22 wherein R^1 is C_2-C_8 alkyl.

24. (New) The polythioether of claim 22 where R^1 is $-(R^3Q)_pR^3-$ where R^3 in each occurrence is C_{1-2} and p being 1 or 2.

25. (New) The polythioether of claim 22 wherein R^2 is C_1-C_2 alkyloxy.

26. (New) The polythioether of claim 22 wherein the molecular weight of said polythioether is between 2000 and 6000 Daltons.

27. (New) The polythioether of claim 22 wherein R^4 is hydrogen.

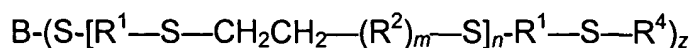
28. (New) The polythioether of claim 22 wherein R^4 is $—[CH_2CH_2(R^2)_m]—X$.

29. (New) The polythioether of claim 22 having an atomic percentage ratio C:S:O of 35-49:20-60:0-20.

30. (New) The polythioether of claim 22 wherein R^4 is capped with an additional terminal functionality selected from the group consisting of: hydroxyl, olefin, epoxy, cyano, isocyano, silyl, siloxy, secondary amine and alkyl groups.

31. (New) A mixture of polythioether polymers comprising:

a polythioether polymer having the formula



where B is a z-valent group of a polyfunctionalizing agent, z is an integer from 3 to 6, R¹ is a C₁₋₁₀ alkyl, $-(R^3Q)_pR^3-$ or C₆-C₂₀ aryl where Q is O or S, each R³ is independently C₁₋₆ alkyl, and p is an integer between 0 and 6; R² is C₁₋₆ alkyloxy or C₅₋₁₂ cycloalkyloxy, R⁴ is H, C₁₋₆ alkyl, C₁₋₆ alkyl alcohol and C₀₋₆ alkyl substituted with $-[CH_2CH_2(R^2)_m]-X$, where X is a halogen, m is an integer between 1 and 4, and n is an integer selected to yield a molecular weight for said polythioether of between 1000 and 10,000 Daltons.

32. (New) The polythioether mixture of claim 31 wherein z is 3.

33. (New) The polythioether mixture of claim 31 wherein the mixture has an average functionality between 2 and 4.

34. (New) The polythioether mixture of claim 33 wherein the average functionality is between 2.05 and 3.00.

35. (New) A curable composition comprising:

42 to 80 weight percent of a polythioether polymer according to claim 22,

0.3 to 15 weight percent of a lightweight filler and 0.1 to 20 weight percent of a curing agent.

36. (New) The curable composition of claim 35 further comprising one or more additives selected from the group consisting of: pigments, cure accelerators, surfactants, adhesion promoters, thixotropic agents and solvents.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

37. (New) The curable composition of claim 36 wherein said lightweight filler comprises microspheres.

38. (New) The curable composition of claim 36 wherein said lightweight filler comprises an amorphous material.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com